

CLAIMS

What is claimed is:

1. A tubular intraluminal filter having proximal and distal ends, a longitudinal axis, a collapsed configuration and an expanded configuration, the expanded configuration having a generally cylindrical body and adjoining proximal and distal sections that taper from the cylindrical body to proximal and distal filter ends, respectively, wherein relative movement of the proximal and distal ends along the axis accompanies transformation of the filter between the collapsed configuration and the expanded configuration, the filter comprising:

a first array of braided filaments extending proximally from the filter distal end to a proximal terminus within a junction region between the cylindrical body and the tapered proximal section; and

a second array of filaments inter-braided with the first array and extending a full length of the filter, wherein the filter proximal section is defined by two or more strands, each strand being intra-braided from groups of filaments of the second array.

2. The filter according to claim 1 wherein the filter proximal section has two or more inlet ports defined by open spaces between the two or more strands

3. The filter according to claim 1 wherein filter pores are formed by interstices between the braided filaments.

4. The filter according to claim 1 wherein the proximal terminus of the first array is coupled to the second array by a retention member.

5. The filter according to claim 4 wherein the retention member comprises an elastic encapsulating sleeve.

6. The filter according to claim 4 wherein the retention member comprises joints formed where filaments of the first array overlap filaments of the second array.
7. The filter according to claim 6 wherein the joints are formed by one or more joining methods selected from adhesive bonding, heat bonding, melt bonding, soldering, brazing, welding, laser welding, resistance welding, and spot welding.
8. The filter according to claim 1 wherein the filter has a shape memory of the expanded configuration.
9. The filter according to claim 1 wherein the filter has a shape memory of the collapsed configuration.
10. A filter catheter comprising a flexible elongate shaft, a filter according to claim 1 mounted about a distal end of the shaft, and an actuation system for causing relative movement of the filter proximal and distal ends along the longitudinal axis of the filter.
11. A method of making an intraluminal filter, the method comprising:
 - braiding multiple filaments to form a filter precursor tube;
 - demarcating tube regions that are intended to become a proximal filter section, a cylindrical filter body, and a junction region there between;
 - severing selected filaments at the junction and removing severed filaments from the proximal filter section;
 - dividing the un-severed filaments in the proximal filter section into two or more groups;
 - intra-braiding each group of filaments into a corresponding strand; and
 - heat-treating the filter to set a selected shape thereof.

12. The method of making an intraluminal filter according to claim 11, further comprising coupling the ends of the severed filaments to adjacent filaments at the junction.
13. The method of making an intraluminal filter according to claim 11, further comprising converging the strands to form a proximal end of the filter.
14. The method of making an intraluminal filter according to claim 11, wherein the selected shape of the filter comprises a generally cylindrical body with proximal and distal ends tapering away from the body.